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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
GRAVINI, STEPHEN MICHAEL	
ART UNIT	**PAPER NUMBER**
3749	

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/769,800	CHUNG, YOUNG-SUK	
	Examiner	Art Unit	
	Stephen Gravini	3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9-22 and 24-38* is/are pending in the application.

4a) Of the above claim(s) *10-14,16-20 and 25-30* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9,15,21,22 and 24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) *10-14,16-20 and 25-30* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-7, 9, 15, 21, 22, and 24 drawn to an apparatus subcombination, classified in class 34, subclass 595.

II. Claims 10-14 and 31-38, drawn to a method, classified in class 34, subclass 484.

III. Claims 16-20 and 25-30, drawn to an apparatus subcombination, classified in class 134, subclass 40.

The inventions are distinct, each from the other because of the following reasons:

Inventions of groups I & III and group II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process as claimed can be practiced by another materially different apparatus or by hand since the independently claimed process method is not limited to a controller as found in the independently claimed groups I & III invention.

Inventions of group I and group III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention of group I has separate utility such as the independently claimed washing machine in the body of

the claim (after the preamble transitional phrase), which is not a limitation in any of the group III inventions. See MPEP § 806.05(d).

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Newly amended and submitted claims 10-14, 16-20 and 25-38 are directed to an invention that is independent or distinct from the invention originally claimed for the reasons set forth in the restriction requirement above.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 10-14, 16-20, and 25-38 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

Claims 1 and 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanigawa et al. (US 5,887,456). Tanigawa is considered to disclose the claimed machine comprising:

a condensing duct **7** to guide the circulated air having passed through the rotating tub to be drawn to the drying heater **44**;

a cold water supply unit to supply cold water to an inside of the condensing duct (please see column 9 line 50);

a water temperature detecting unit **8** to detect temperatures of water, condensed in the condensing duct through contact between the circulated air and the cold water, using regular time intervals to provide initial detected temperatures and final detected temperatures for set sections (please see column 9 lines 30-41); and

a controller **24** to calculate a temperature difference between the initial detected temperature and the final detected temperature for each set section, and to determine whether an end of a drying process is reached based on a comparison of at least two temperatures differences of the two set sections (again please see column 9 lines 30-41). Tanigawa is considered to also disclose the claimed spray nozzle **100**, cold water supply hose **106**, drying valve **95**, and counter to accumulatively count a drying time while the drying process is performed, wherein the controller is provided with the accumulatively counted time from the counter to determine whether the end of the drying process is reached (please see column 14 line 16).

Claim Rejections - 35 USC § 103

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanigawa in view of Clodic. Tanigawa is considered to disclose the claimed invention, as discussed above under the anticipatory rejection, except for the claimed submerged detector and its disposal location. Clodic, another laundry machine, is considered to disclose a submerged detector and its disposal location at column 3 lines 33-43. It would have been obvious to one skilled in the art to combine the teachings of Tanigawa

with the considered disclosed temperature detector location for the purpose of monitoring saturation temperature.

Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman et al. (US 5,806,204) in view of Tanigawa. Hoffman is considered to disclose the claimed machine comprising:

a water temperature detecting unit **38** to detect temperatures of water condensed through contact between the circulated air and cold water supplied from an external water source to dry the laundry;

a counter to accumulatively count a drying time while a drying process is performed; and

a controller to determine whether an end of the drying process is reached based on the temperatures of the water detected by the water temperature detecting unit and the drying time accumulatively counted by the counter, and to terminate the drying process according to a result of the determination (please see column 3 lines 20 through 40 wherein the disclosed present temperature and moisture parameters implies the claimed time controlled drying process because in both the disclosure and claims, it is considered that drying will stop after a preset parameter (i.e. temperature or moisture) is reached after a given determined time has been counted with respect to measure parameters). Hoffman is also considered to disclose the claimed wherein the controller determines whether the end of the drying process is reached when the temperature of the water detected by the water temperature detecting unit decreases, wherein the controller determines whether the end of the drying process is reached by detecting the

water temperatures at regular drying time intervals using the water temperature detecting unit, and comparing an accumulated temperature difference, which is calculated by accumulating temperature differences obtained in set sections, with a set value, and wherein the controller further determines whether the end of the drying process is reached by increasing a number of detections if the accumulated temperature difference satisfy the set value, and by comparing the increased number of detections with a set number of detections corresponding to the accumulatively counted drying time under the same reason discussed in rejection of the independent claim. Hoffman is considered to disclose the claimed invention, except for the feature including controller determination whether the end of the drying process is reached by detecting the water temperatures at regular drying time intervals using the water temperature detecting unit, and comparing an accumulated temperature difference, which is calculated by accumulating temperature differences obtained in set sections, with a set value. Tanigawa, another washing machine, is considered to disclose a controller determination whether the end of the drying process is reached by detecting the water temperatures at regular drying time intervals using the water temperature detecting unit, and comparing an accumulated temperature difference, which is calculated by accumulating temperature differences obtained in set sections, with a set value at column 9 lines 43-60. It would have been an obvious to one skilled in the art to combine the teachings of Hoffman with the controller determination whether the end of the drying process is reached by detecting the water temperatures at regular drying time intervals using the water temperature detecting unit, and comparing an accumulated

temperature difference, which is calculated by accumulating temperature differences obtained in set sections, with a set value, for the purpose of drying clothing by dehumidifying circulating air.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clodic (US 6,161,306) in view of Tanigawa. Clodic is considered to disclose the claimed machine and method comprising:

a heater **8**;

a condensing duct **4** to guide the circulated air from the rotating tub to the heater;

a water supplier **14** to supply water to the condensing duct such that water is condensed from the circulated air in the condensing duct by communication between the circulated air and the supplied water;

a temperature detector **28** or **29** to detect a temperature of the condensed water; and

a controller **31** to terminate a drying process according to changes in the temperature of the condensed water or alternatively

condensing water from the circulated air by communication between the circulated air and supplied water (please see column 4 lines 26-35);

detecting changes in temperature of the condensed water (please see column 4 lines 42-51); and

terminating a drying process if an end of the drying process is determined to be reached based upon the detected changes in the temperature of the condensed water (please see column 4 line 44). Clodic is considered to disclose the claimed invention,

except for using regular time intervals to provide initial detected temperatures and final detected temperatures for set sections and to calculate a temperature difference between the initial detected temperature and the final detected temperature for each set section and drying termination according to a comparison of at least two temperature differences of two set sections. Tanigawa, another laundry device, is considered to disclose the steps of using regular time intervals to provide initial detected temperatures and final detected temperatures for set sections and to calculate a temperature difference between the initial detected temperature and the final detected temperature for each set section and drying termination according to a comparison of at least two temperature differences of two set sections at column 9 line 65 through column 10 line 29. It would have been obvious to one skilled in the art to combine the teachings of Clodic with the steps of using regular time intervals to provide initial detected temperatures and final detected temperatures for set sections and to calculate a temperature difference between the initial detected temperature and the final detected temperature for each set section and drying termination according to a comparison of at least two temperature differences of two set sections, considered disclosed in Tanigawa, for the purpose of drying clothing at pre-selected times and pre-selected temperatures.

Claims 21-22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (US 4,250,628) in view of Turetta et al. (US 5,228,212) in further view of Tanigawa. Smith is considered to disclose a method and machine comprising:

detecting temperatures of water condensed through contact between the circulated air and cold water supplied from an external water source to dry the laundry at column 5 lines 1-9) or

a temperature detector **64** to detect a temperature of the condensed water. Smith is considered to also disclose an air outlet **30** disposed in the lower portion of the condensing duct to pass the circulated air there through, wherein the temperature detector is disposed between the air outlet and a bottom of the condensing duct, a spray nozzle **26** disposed in the condensing duct, a water supply hose **100** connected to the spray nozzle, and a drying valve **101** disposed in the water supply hose to selectively supply the water supplied from an external water source, drying time counter (column 12 lines 32-36), a drying heater **88**, a discharge hose **40**, and wherein the drying valve operates so that an amount of water collecting in the condensing duct is greater than an amount of water discharged through the discharging conduit, so that the water temperature detector is submerged in the collected water (column 7 lines 43-46). Smith is considered to disclose the claimed invention, except for the claimed terminating a drying process if an end of the drying process is determined to be reached based upon the detected water temperatures, a condensing duct to condense water from circulated air passing through the washing machine, and a controller to terminate a drying process according to changes in the temperature of the condensed water, a rotating tub, and a centrifugal fan mounted on the water tub and having an inlet and an outlet. Turetta, another laundry machine, is considered to disclose features including determining a drying process if an end of the drying process is determined to be

reached based upon the detected water temperatures at column 4 lines 29-41, a condensing duct **15** to condense water from circulated air passing through the washing machine, a controller **27** to terminate a drying process according to changes in the temperature of the condensed water, a rotating tub **6**, and a centrifugal fan **7** mounted on the water tub and having an inlet and an outlet. It would have been obvious to one skilled in the art to combine the teachings of Smith with the claimed features considered to be found in Turetta for the purpose of providing a condensate controlled timing feature in laundering clothes such that a drying process is effectively terminated based on various drying variables, such as time, temperature or moisture values .

Furthermore Smith in view of Turetta is considered to disclose the claimed invention, as discussed in the obviousness rejection above, except for the claimed condensate submerged temperature detector. Examiner takes Official notice that the temperature detector location of Smith in view of Turetta is an obvious variation of the detector location claimed because condensate is at a saturation temperature and the temperature detection of the exhausted steam, as disclosed by Smith in view of Turetta with be at saturation temperature since it is just prior to being discharged into the condensate. It would have been obvious to one skilled in the art to claim a temperature detector location, since it is considered old and well known that a temperature of a saturated steam is the same as saturated condensate. Finally Smith in view of Turetta is considered to disclose the claimed invention, as discussed in the obviousness rejection above, except for detection set comparisons and curved condensing duct. It would have been an obvious matter or design choice to one skilled in the art to use a

set comparison drying variable with a curved condensing duct because applicants have not distinguished the merits of those claimed features over what is already disclosed in the prior art. Smith in view of Turetta is considered to disclose the claimed invention, except for using regular time intervals to provide initial detected temperatures and final detected temperatures for set sections and to calculate a temperature difference between the initial detected temperature and the final detected temperature for each set section and drying termination according to a comparison of at least two temperature differences of two set sections. Tanigawa, another laundry device, is considered to disclose the steps of using regular time intervals to provide initial detected temperatures and final detected temperatures for set sections and to calculate a temperature difference between the initial detected temperature and the final detected temperature for each set section and drying termination according to a comparison of at least two temperature differences of two set sections at column 9 line 65 through column 10 line 29. It would have been obvious to one skilled in the art to combine the teachings of Smith in view of Turetta with the steps of using regular time intervals to provide initial detected temperatures and final detected temperatures for set sections and to calculate a temperature difference between the initial detected temperature and the final detected temperature for each set section and drying termination according to a comparison of at least two temperature differences of two set sections, considered disclosed in Tanigawa, for the purpose of drying clothing at pre-selected times and pre-selected temperatures.

Response to Arguments

Applicant's arguments filed April 26, 2005 have been fully considered but they are not persuasive and are partially moot on new grounds of rejection.

anticipation

Applicant argues that the amended independently claimed feature including " a controller to calculate a temperature difference between the initial detected temperature and final detected temperature for each set section, and to determine whether an end of a drying process is reached based on a comparison of at least two temperature differences of two set sections" is not disclosed in Tanigawa.

Current Office practices permits claims to be given the broadest reasonable interpretation in light of the specification. As discussed above in the anticipatory rejection, Tanigawa discloses at see column 9 lines 30-60, the air exhaust temperature and air intake temperature can be broadly construed to anticipate the argued feature because both can represent a temperature difference for calculating drying temperature differences. Since the rejection to claim 1 is considered proper and applicant argues that dependent claims 4 and 5 should therefore be allowable, claims 1 and 4-5 are considered anticipated by Tanigawa such the rejection is considered proper and therefore maintained.

obviousness

Since the rejection to claim 1 is considered proper and applicant argues that dependent claims 2 and 3 should therefore be allowable, claims 2-3 are considered

obviated by Tanigawa in view of Clodic such the rejection is considered proper and therefore maintained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Gravini whose telephone number is 571 272 4875. The examiner can normally be reached on normal weekday business hours (east coast time).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica S. Carter can be reached on 571 272 4475. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SMG
June 14, 2005

Stephen Gravini